Effects of moisture duration and temperature on infection of Exserohilum monoceras on Echinochloa crus-galli at different growth stages

ABSTRACT

The effects of moisture duration and temperature on the infectivity of Exserohilum monoceras on Echinochloa crus-galli, an important weed in Malaysian granaries, were investigated. The results showed that E. monoceras infections were influenced by the availability of moisture and temperature. The fungus needed a minimum of 12 h of humidity to cause severe disease on the host. The apparent disease infection rate was also influenced by moisture duration exposed to the plants. The fastest apparent infection rate was observed at 24 h of moisture exposure for 2-leaf plants (rL = 0.74 logit/day) and 6-leaf plants (rL = 0.72 logit/day). The optimum temperature for infection was within the range of 25 ï 35 ºC. The study indicated that temperature also influenced the ability of the fungus to infect E. crus-galli. The apparent infection rate for 4-leaf plants at 25 ºC was rL = 1.05 logit/day, 30 ºC at rL = 1.0 logit/day and 35 ºC at rL = 0.77 logit/day. It could be taken as an advantage particularly in Malaysia where the temperature in granary areas usually ranges from 27 ï 37 ºC. Based on the results of this study, E. monoceras can be exploited as a bioherbicide, if the constraints related to moisture dependency can be solved.

Keyword: Infection rate; Disease; Biocontrol agent; Bioherbicide